



EFFECTIVENESS OF THINK –PAIR-SHARE TECHNIQUE OVER CONVENTIONAL TECHNIQUE IN PROMOTING SCIENCE EDUCATION AT UPPER PRIMARY STANDARD

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ABSTRACT

At the upper primary stage the children are getting their first exposure to 'science'; then is the time to bring home the right perspective of what it means to 'do science'. Science education at this stage should provide a gradual transition from environmental studies of the primary stage to elements of science and technology. Scientific concepts to be taught at this stage should be chosen so as to make sense of everyday experiences. Though most concepts should be arrived at from activities/experiments, a rigidly inductive approach is not necessary. The Think-Pair-Share technique is designed to differentiate instruction by providing students time and structure for thinking on a given topic, enabling them to formulate individual ideas and share these ideas with a peer. This learning technique promotes classroom participation by encouraging a high degree of pupil response, rather than using a basic recitation method in which a teacher poses a question and one student offers a response.

KEYWORDS: Think-Pair-Share-Technique, Conventional-Technique, Upper Primary Standard.

Introduction

For the last many decades, science education in India has been an endeavour of unsettled dichotomies and contradictions. For almost three decades now, science is an essential subject up to Class X all over the nation, yet this widespread science education continues to be largely irrelevant to most students and its quality insufficiently poor. The over-all conceptualization of science curriculum at the national level has matured steadily and kept pace with evolving contemporary trends in science education the world over; yet this has hardly translated into any significant improvement in the actual teaching of science. (National focus paper on science, NCERT)

At the upper primary stage the children are getting their first exposure to 'science'; this then is the time to bring home the right perspective of what it means to 'do science'. Science education at this stage should provide a gradual transition from environmental studies of the primary stage to elements of science and technology. Scientific concepts to be taught at this stage should be chosen so as to make sense of everyday experiences. Though most concepts should be arrived at from activities/experiments, a rigidly inductive approach is not necessary. It is important to ensure that a collaborative, active learning strategy, in which students work on a problem posed by the instructor, first individually, then in pairs or groups and finally together with the entire class (National focus paper on science, NCERT).

The Think-Pair-Share technique is designed to differentiate instruction by providing students time and structure for thinking on a given topic, enabling them to formulate individual ideas and share these ideas with a peer. This learning strategy promotes classroom participation by encouraging a high degree of pupil response, rather than using a basic recitation method in which a teacher poses a question and one student offers a response. Additionally, this strategy provides an opportunity for all students to share their thinking with at least one other student which, in turn, increases their sense of involvement in classroom learning. Think-Pair-Share can also be used as an information assessment tool; as students discuss their ideas, the teacher can circulate and listen to the conversations taking place and respond accordingly.

Think-pair-share is a cooperative learning technique. Cooperative learning has been extensively studied and has been shown to have many benefits for learners (Lujan & DiCarlo, 2006; Cortright et al., 2005; Goodwin, 2005). Also, using think-pair-share inherently increases wait time after students are posed with a question or task (McTighe & Lyman, 1988). This allows more time for students to think, and has been shown to get more students involved in discussion and improve the quality of student responses. Think-pair-share is also very useful to teachers because it can be used as a valuable form of formative assessment (Cooper & Robinson, 2000).

Introduced by Lyman in 1981 (Lyman, F. 1981). Think-Pair-Share has been widely recommended and used by teachers at both the college and school levels (Bonwell, C. C. 1996, Johnson, D. W., & Johnson, R. T. 1999). Instructors favour Think-Pair-Share because it is perceived to be relatively easy to implement. Depending on the nature of the task in the Think-Pair-Share activity, it can be used in different stages of the instructional sequence. Think-Pair-Share affords the benefits of small-group collaborative learning in a large lecture class,

requires students to think about course content, can develop higher order thinking skills and allows students to formulate their reasoning individually before sharing with others (Bonwell, C. C., & Eison, J. A. 1991). Another important benefit of Think-Pair-Share is that it offers a mechanism of formative assessment in a large classroom (P. Black and D. Wiliam, 1998, Cooper, J. L., Robinson, P. 2000). It provides students prompt and descriptive feedback on their understanding, both from their peers and from the instructors. It also provides instructors an immediate feedback on the quality of student understanding. Students and instructors can use this feedback to modify their learning and teaching respectively.

In order for meaningful learning to occur, students must interpret, relate, and incorporate new information with students' existing knowledge and experiences (Cortright et al., 2005). Students must actively process information in order to learn (Lujan & DiCarlo, 2006). Cooperative learning allows students to process new information and, through discussion and peer to peer interaction, assign meaning to what is being learned (Lujan & DiCarlo, 2006).

The think-pair-share technique is one way to incorporate cooperative learning into a classroom in order to give students the opportunity to actively process and develop a meaningful understanding of class material.

Purpose of the Study

Now day's students are not having interest in science education because of out-dating techniques of teaching of science subject. The purpose of the study to find out the effectiveness of think pair share technique in promoting science education among students.

Materials & Methods

Participants

In this study 40 students of 8th standard age group of 12 to 14 years studying at govt added secondary school at Sitapur district, Uttar Pradesh were randomly selected from two sections. Science subject topic taught to both the group with ten intervention classes through one technique to each group

Tools for Intervention

For the purpose of intervention two types of techniques were used. On one hand, the conventional way of teaching science to students, in which technique teacher start to introduce lesson then explaining about content and after that posing the questions towards students individually and On the other hand In think pair share technique, a problem is posed, students have time to think about it individually, and then they work in pairs to solve the problem and share their ideas with the class. Think-Pair-Share is easy to use within a planned lesson, but is also an easy strategy to use for encourage-of-the-moment discussions. This technique can be used for a wide variety of daily classroom activities such as concept reviews, discussion questions, partner reading, brainstorming, quiz reviews, topic development, etc. Think-Pair-Share helps students develop conceptual understanding of a topic, develop the ability to filter information and draw conclusions, and develop the ability to consider other points of view.

Before introducing the Think-Pair-Share technique to the students, decide on target for lesson. A new text had been chosen to use. A set of questions or prompts

that target key content concepts had been developed.

The technique was described and its purpose with students, and provided guidelines for discussions were selected. Explain to students that they could think individually about a topic or answer to a question then pair with a partner and discuss the topic or question; and share ideas with the rest of the class.

Using a student or student(s) from your classroom, model the procedure to ensure that students understand how to use the technique. Allow time for students to ask questions that clarify their use of the technique.

Once students have a firm understanding of the expectations surrounding the technique, monitor and support students as they work through the steps below. Teachers may also ask students to write or diagram their responses while doing the Think-Pair-Share activity.

Tools for Testing

For the purpose of assessing pre and post-test performances of the participants before and after intervention, Based on this protocol for verifying all five cognitive levels i.e knowledge, understanding, application, analysis, synthesis and evaluation based questions were incorporated related to the lesson. The tests were developed for pre and post-tests separately so as to avoid the influence of prior exposure at the time of post-test.

Procedure

The process of research involved a seven-step sequence beginning with selection of participants. Following this, target content was appropriated based on the ongoing instruction in the school. The sequence of intervention in the two parallel forms had been designed following review of appropriate literature, followed by implementation of the same through parallel sessions in out-of-the-way environments to avoid spill over effect. Interventional sessions culminated in the post-test followed by analysis and interpretation of the data. The pre and post tests were carried out on one-to-one basis with each individual child-participant. The interventional training employing the two parallel techniques were imparted in pairs to 20 participants in each of the group.

Results

The data which was obtained from the pre-test and post-test were analyzed by the appropriate Statistical methods for both the group, i.e. control and experimental group.

Group statistics

Test	Group	N	Mean	Std. Deviation
Pretest	Experimental group	20	8.3000	1.58036
Pretest	Control group	20	7.8433	1.36899
Posttest	Experimental group	20	17.3000	1.90079
Posttest	Control group	20	8.2000	1.18721

The above bar diagram contains the results of control and experimental group. This shows that there was an improvement in both the groups. But, experimental group came up with better results compared with the control group. This was due to the effect of pair share technique which was used for experimental group.

Discussion

The above results show that the performance of experimental group i.e. think pair share technique is better than conventional techniques. This proves the effectiveness of think pair share technique in promoting science education. The think-pair share technique is one way to incorporate cooperative learning into a classroom in order to give students the opportunity to actively process and develop a meaningful understanding of class material. Research has shown that cooperative learning increases students' understanding and ability to integrate and synthesize new material (Lujan & DiCarlo, 2005). Cooperative learning has also been shown to increase academic achievement, positive social skills, and self-esteem (Goodwin, 1999). Also, cooperative learning has been shown to aid critical thinking, problem solving, and decision-making skills (Cortright et al., 2005).

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